



FEDERAL AVIATION ADMINISTRATION

**SALT LAKE CITY B (SLCB)
REMOTE TRANSMITTER/RECEIVER (RTR)
NATIONAL AIRSPACE EQUIPMENT BUILDING (NASEB)
REFURBISHMENT
JCN: 19006559**

SCOPE OF WORK & SPECIFICATIONS

**SLCB RTR
SALT LAKE CITY, UT**

DATE: APRIL 27, 2021

PREPARED FOR: SALT LAKE CITY NAV/COMM/ENV SSC, WWT51-SLC
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1. SLCB-RTR-19006559

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by FAA.
4. FAA-furnished products.
5. Contractor-furnished, FAA-installed products.
6. Coordination with occupants.
7. Specification and Drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of FAA's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: Salt Lake City B (SLCB) Remote Transmitter/Receiver (RTR) National Airspace Equipment Building (NASEB) Refurbishment Project

1. JCN: 19006559
2. Project Location: Salt Lake City, Utah
Coordinates: 40.76806, -111.9675

B. Owner: FAA / Salt Lake City NAV/COMM/ENV SSC
1201 N 4000 W St
Salt Lake City, UT 84116

1. Owner's Representative: Paula Fries, SSC Manager

A. Project Engineer: Chelsea Khang
2200 S. 216th St.
Des Moines, WA 98198

1. Project Engineer has been engaged for this Project to serve as an advisor to Owner and to provide assistance in administering the Contract for construction between Owner and Contractor, according to a separate contract between Owner and Construction Manager.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The selected Prime Contractor shall furnish all labor, equipment, and materials for the demolition and installation associated with the NASEB Refurbishment & HVAC Replacement Project at the SLCB RTR located in Salt Lake City, Utah. NASEB refurbishment includes removal and replacement of the water damaged ceiling interior, the water damaged interior of the north, south, east, and west perimeter walls, repair of wall and floor crack, removal of the floor tiles, installation of epoxy floor, sealing/re-caulking building exterior and around joints, and cleaning the steel base angles around the building exterior.
2. The following items are a summary of the project and are provided solely for the purpose of describing the general nature of the work. The Contractor is responsible for accomplishing all items of work identified in the applicable drawings, specifications, and provisions of the contract.

B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule showing the sequence, commencement and completion dates, for all phases of the Work.

1.4 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by FAA. Coordinate the Work of this Contract with work performed by FAA.

1. The FAA reserves the right to inspect all work performed by the contractor.

1.5 CONTRACTOR-FURNISHED PRODUCTS

A. Contractor shall furnish products indicated. The Work includes unloading, handling, storing, and protecting Contractor-furnished products as directed and turning them over to FAA at Project closeout.

B. All materials must be approved by the Project Engineer or FAA representative prior to application. A materials list for submittal will be provided by the Project Engineer for this project.

1.6 ACCESS TO SITE

A. Use of Site: Limit use of Project site to building area as indicated in project drawings. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

- a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
- C. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

- A. Partial FAA Occupancy: FAA will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with FAA during construction operations to minimize conflicts and facilitate FAA usage. Perform the Work so as not to interfere with FAA's operations. Maintain existing exits unless otherwise indicated.
- 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from FAA and authorities having jurisdiction.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
- 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 07:00 a.m. to 04:00 p.m., Monday through Friday, unless otherwise indicated.
- 1. Working hours may be adjusted to meeting scheduling demands. Must receive explicit approval from FAA.
 - 2. Weekend hours: Only if approved by the FAA.
 - 3. No work to be performed on federal or federally observed holidays.
 - 4. Hours for Utility Shutdown: Notify FAA 72 hours in advance.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing and/or coordinating temporary utility services according to requirements indicated:
- 1. Notify COR/RE not less than three (3) days in advance of proposed utility interruptions.
 - 2. Notify COR/RE not less than thirty (30) days in advance of proposed utility interruptions that will result in a long-term shutdown.
 - 3. Obtain COR/RE written permission before proceeding with utility interruptions.

- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to FAA occupancy with FAA.
- E. Protection of Existing Equipment: Provide protection of the existing equipment within the building from construction related work, materials and debris. Repair damage caused by construction operations.
- F. Restricted Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- G. Employee Identification: FAA will provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times. All Contractor employees must be escorted at all times. Contractor(s) shall obtain Airport Driving Certification if applicable. Contractor shall also obtain FAA Contractor Badging for the duration of the project if applicable.
- H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site if requested.
 - 1. Maintain list of approved screened personnel with Owner's representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 011400 – WORK RESTRICTIONS

PART 1 - CONDUCT OF WORK

1.1 COORDINATION AND ACCESS TO SITE

- A. The work is at a critical facility which must remain operational 24 hours a day 7 days a week. The Contractor must not interfere with or disrupt air traffic operations unless permitted under the following conditions and then only after providing and/or coordinating temporary utility services according to requirements indicated:

1. Notify COR/RE not less than three (3) days in advance of proposed utility interruptions.
2. Notify COR/RE not less than thirty (30) days in advance of proposed utility interruptions that will result in long-term shutdown.
3. Obtain COR/RE written permission before proceeding with utility interruptions.

The work shall not discharge static electricity, damage, or interfere with other equipment at the facility, and security shall not be compromised. Coordinate working hours with FAA COR/RE prior to beginning of work.

- B. General Area Requirements: The Contractor must confine operations, activities, storage of materials, and employee parking within the project boundaries and the approved staging and loading/unloading areas. Any additional space the Contractor deems necessary must be submitted to the COR for review and approval, or be obtained off site, at no additional cost to the Government.
- C. Security Requirements: This project is on a restricted entry site and no compromise of the security system in any nature or of any duration may be made without prior approval of the Contracting Officer. Generally, such compromises, when approved, will be less than 24 hours in duration.
- D. Facility Access Badges: Contractor personnel shall be subject to a security investigation by the FAA and shall obtain FAA Identification Media Badge prior to start of on-site work. Contractor shall return all badges to the FAA prior to final acceptance.
1. After award the Contractor shall provide the Contracting Officer with a list of contractor personnel who shall request FAA Identification Media Badge. The list shall be kept current during the entire duration of the project. The Contractor shall designate a representative to be the POC for inputting employee information into the Vendor Applicant Process (VAP). The Contractor shall request from the Contracting Officer all necessary forms, including FD 258 Fingerprint Card, 1681 Application, OF 306, and I-9. The Contracting Officer shall provide instruction for submitting forms.
 2. Security Badge Process: Badging is a two stage process. The initial phase includes VAP entry and background check conducted by FAA security. Notification shall be provided by FAA Security of "Interim Suitability". At that time, contractor employees will be notified to make an appointment at a FAA PIV Center. A FAA PIV Center is located on the grounds of the FAA facility. Alternate locations for PIV Centers can be provided upon request. The badging pro-

cess can take up to 60 days to complete. The timeframe varies based on filling out the forms timely and correctly, and scheduling appointments at the PIV Center promptly, etc.

3. Types of FAA Identification Media Badge. FAA Identification Media consist of a Contractor PIV Badge and Contractor Yellow Badge. Contractor PIV Badge allows the contractor access to the grounds and work site and escort authorized visitors at the work site. Contractor Yellow Badge allows the individual employee access to the grounds and work site. The FAA reserves the right to limit the number of PIV Badges issued.
4. Visitor Access: A visitor is defined as any employee who does not have a FAA Identification Media Badge. A minimum of 2 work day notification to the COR is required for admittance to the FAA facility. Contractor personnel with a “PIV badge” shall escort the visitor at all times while on site. FAA employees will not escort contractor employees except when it is coordinated and approved by the COR. Visitor access for the employee shall be renewed daily by the contractor. Visitor access is limited to single visit short duration employees.
- E. Some areas in the facility are classified as controlled areas that require government escort of Contractor’s personnel. Contractor’s personnel must not violate any security regulations pertaining to the facility. The Contracting Officer has the authority to remove anyone from the site, including anyone who is determined to be a security risk. This authority extends to the entire complex, not just the buildings.
- F. Facility Security Requirements:
 1. Current procedures at FAA facilities include the “right to search”. Access to the site constitutes consent to search. If in the judgment of the FAA Security Guard a cause to search a vehicle or the person of personnel exists, such search will be made.
 2. Contractor’s personnel shall not violate any security regulations pertaining to the FAA facility. Violators may be removed from the premises with the right to re-enter revocable.
 3. All persons entering or delivering to this federal facility must have valid government issued identification.

Valid issued government identification is:

- a) ID issued by the federal, state, county, or city government or by the military.
 - b) Must have the person’s legal name.
 - c) Must have a unique ID number.
 - d) Must have an expiration date.
 - e) Must have a picture of the individual.
 - f) Must have the name of the agency issuing it.
(examples: state issued driver’s license or IDs, passports, or military ID.)
4. Persons entering on to federal property (including visitor parking lot) are prohibited from having on their person or in their vehicle:
 - a) Guns.
 - b) Knives with blades over 3 inches except for valid tools.
 - c) Projection devices, bow and arrows, paint ball weapons, blow guns...etc
 - d) Clubs, batons, collapsible batons, or saps.
 - e) Stun guns or tazers.

- f) Chemical agents, mace, or pepper sprays.
 - g) Martial arts weapons of any kind.
 - h) Weapons of any kind.
 - i) Alcohol.
 - j) Illegal drugs.
 - k) Animals with the exception of a verified service animal.
 - l) Family members, friends, children, minors, anyone not authorized on the FAA visitor list.
- G. Contractor Deliveries: The Contractor must provide an individual, submitted to and approved by the COR, who will be responsible for arranging site access for periodic or unscheduled Contractor deliveries. This individual must coordinate with the COR and facility security personnel, prior to the delivery, for site access of the delivery vehicle. Facility security personnel must be provided, at a minimum, with the name of the vendor, the driver's name, and the purpose for site access. Delivery vehicles arriving at the gate without prior notice and acceptance will be denied access. Delivery vehicles shall only contain items being delivered to FAA; if vehicles contain deliveries for recipients other than FAA, the vehicle will not be allowed on site. The Contractor assumes complete liability for the actions of delivery personnel and vehicles while on site.
- H. Work hours: Normal work hours are 07:00 a.m. to 04:00 p.m., Monday through Friday. No work will be performed outside these hours without prior approval of the COR. If the Contractor intends to work other than normal work hours, the Contractor must notify the COR at least 24 hours in advance, or 48 hours prior to night, weekend, or holiday work. The Contractor shall notify the FAA if personnel will not report to the job site on a normal work day so that the COR and FAA staff can plan accordingly.
- I. FAA Maintenance Moratoriums: Unless allowed otherwise by the FAA, no work shall be scheduled or take place during the week of and weekends preceding and following the Thanksgiving, Christmas, and New Year's holidays. Only emergency work to restore critical services to the Facility will be considered and a moratorium waiver must be submitted and approved. The moratorium period will not be counted against the contract construction duration of the project. Verify exact dates with COR and include moratorium dates in Contractor's Construction Schedule (refer to Section 01 32 00).
- J. The Contractor's foreman or superintendent, or another responsible individual temporarily assigned to act as the foreman or superintendent, must be present on site at all times whenever work is being done, even if the only work being performed is by a subcontractor or is a delivery.
- K. Contractor's use of premises: The Contractor must allow the Government complete access to all portions of the work site at any time.
- L. Staging and parking: No parking or material storage will be allowed within 20 feet of any exterior fence. The Contractor's staging area is limited to the area designated by the COR. This will be reviewed and agreed on prior to site mobilization. The Contractor is responsible for providing temporary security fencing of their staging area if desired. See Section 01 50 00, "Temporary Facilities and Controls."
- M. Vehicle engines of parked vehicles must not be left idling near air intakes for longer than ten minutes for gasoline engines or two minutes for diesel engines.

- N. Special Tool Restrictions: Powder-driven fasteners, tools, and devices are not allowed on facility property. Not including vehicle engines, fuel (including natural gas, propane, gasoline, or diesel) powered tools and devices are only allowed with prior approval and scheduling with the COR. At least 48-hours' notice must be given prior to any proposed use of fuel-powered tools or devices. This restriction includes fuel-powered pumps, generators, welders, and air compressors, including those mounted on vehicles but with their own engines.
- O. Outages: The Contractor must request in writing and coordinate any mechanical, water, sewer, or electrical outage at least three working days in advance with the COR. Outages must be kept to a minimum. Outages could require the Contractor to work during other than normal hours at no additional cost to the Government.

Only the FAA will turn off, lock out, and tag out systems, not the Contractor, including all facility equipment, valves, and breakers. The FAA will lock out and tag out systems, and the Contractor may add their lock out and tag out on top of the FAA's. The Contractor shall positively verify de-energization before working on individual systems.

- P. The Contractor must provide safety cones, barricades, and flag off exclusion areas, such as overhead work or around openings. Refer to Sections 01 35 29 Health, Safety and Emergency Response Procedures, and 01 40 00 Quality Requirements.
- Q. Testing: The Contractor must notify the COR in writing at least three working days in advance of any testing.
- R. In addition, any work involving jackhammering, cutting, sanding, sawing, grinding, drilling, and/or general demolition of concrete or masonry material will generate dust that may contain silica which is harmful when inhaled. These types of activities should be performed wet, when possible, with a localized water misting system, or with the use of local exhaust ventilation (LEV). Ventilation can be achieved with either a portable local exhaust unit, or with tools fitted with a vacuum dust collection (VDC) system. The use of fans for circulation of general room air is not permitted, as well as the use of compressed air to clean clothing, tools, or work material. Appropriate eye and respiratory protection should also be considered to prevent exposure.

1.2 SUPPLEMENTARY REQUIREMENTS

- A. Damage to the Site: Damage caused by the Contractor's activities to existing facility paving, lawns, curbs, sidewalks, utilities, or buildings must be repaired or replaced by the Contractor. After the Notice to Proceed and prior to the start of construction, the Contractor and COR must conduct joint inspections of the existing areas affected by the construction. Existing site damage/defects in these areas must be noted by the Contractor in writing and photographed and will be used as the basis for determination of any damages caused by the Contractor's operations.
- B. Photography Permit: Photography is allowed on site only by permit from the facility, as obtained by the COR. Photographs are generally restricted to documenting the work and progress and should not show any FAA employees or employees' automobile/vehicle license plates. Photographs from the facility are for official Government use only and cannot be used on Contractor promotional material or without the expressed written consent from the FAA.
- C. The following items are strictly prohibited on the facility:

1. Any unsafe act.
 2. Explosives.
 3. Pets or animals.
 4. Blocking facility driveways or entrances.
 5. Allowing fumes or odors from the work to enter the facility.
 6. Working on energized electrical circuits.
 7. Fires or burning.
 8. Use of forklifts, manlifts, loaders or other self-propelled equipment unless equipped with a fire extinguisher.
 9. Dripping or leaking vehicles or equipment.
 10. Refueling of vehicles or equipment while hot.
 11. Bringing any material of health, safety or environmental concern on site without Safety Data Sheets (SDS) being readily available on the work site, and without spill containment materials in place and ready to catch spills, including while fueling or servicing vehicles or equipment.
 12. Open flame, torching, or other welding without a fire watch, fire extinguisher, and daily hot-work permit from the COR.
 13. Performing any work on site without properly providing warning signs, safety cones, barricades and flagging off exclusion areas, such as for overhead work or around openings.
 14. Performing any work on site without proper personal protective clothing and equipment, such as hard hats, safety glasses, hearing protection, high visibility vests, gloves, protective boots, et cetera.
 15. Performing any work on electrical or mechanical systems before positively verifying that the facility has de-energized and locked it out.
 16. Use of any tools or equipment without proper inspection before use, including at least daily inspections of equipment.
 17. Use of any tools, equipment, or vehicles unless trained, experienced, and certified (if applicable), and authorized by the Contractor, including to operate manlifts or forklifts.
 18. Use of any electrical equipment or extension cords in wet conditions or if not in dry conditions, properly maintained, grounded, and with ground fault circuit interruption (GFCI) protection.
 19. Working in an area unless there is at least one 2-A:20-B:C minimum portable fire extinguisher in plain sight and within 50 feet of the work.
 20. Working in an area if there is a risk of fire blocking the exit unless a second means of escape is provided in case of emergency.
 21. Smoking except in designated areas that have safe receptacles for smoking materials, and that are located more than 50 feet from building entrances.
- D. Prevention of Transference of Construction Noise, Dust and Odors: All areas outside the project work areas in the facility will remain occupied and operational (24 hours a day, 7 days a week) throughout the entire period of performance of construction. The Contractor is to establish, to the satisfaction of the COR, and maintain provisions to prevent the transference of construction noise, dust and odors from construction areas and activities to the occupied areas of the facility. Such provisions ought to include sealing of existing and new openings in walls, floors and ceilings within the work areas, negative air system, et cetera. The Contractor is to

submit to the COR for FAA review and approval proposed methodology for preventing transference.

- E. Contractor's Responsibility for Testing: All testing identified in these documents and/or otherwise required for implementation and completion of the project is the responsibility of the Contractor at no additional cost to the Government.

1.3 SUBMITTALS

- A. Contractor employee list for facility access.
- B. Existing site damage/defects report.
- C. Methodology for preventing construction noise, dust and odors from transferring for work areas to occupied areas of the facility.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION 011400

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or FAA that are not required in order to meet other Project requirements but may offer advantage to Contractor or FAA.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by FAA and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Certificates and qualification data, where applicable or requested.
 - f. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - g. Cost information, including a proposal of change, if any, in the Contract Sum.
 - h. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - i. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. COR's Action: If necessary, COR will request additional information or documentation for evaluation within 15 days of receipt of a request for substitution. COR will notify Contractor of acceptance or rejection of proposed substitution within 30 days of receipt of request.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or COR's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if COR does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 30 days prior to time required for preparation and review of related submittals.
 1. Conditions: COR will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, COR will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution is compatible with other portions of the Work.
 - e. Requested substitution has been coordinated with other portions of the Work.
 - f. Requested substitution provides specified warranty.
 - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: COR will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of COR.
1. Conditions: COR will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, COR will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers FAA a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities FAA must assume.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. COR/RE will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 PROPOSAL REQUESTS

- A. FAA Proposal Requests: FAA representative will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by FAA are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 7 day after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to the CO and COR/RE.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. RFIs.
 - 3. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 DEFINITIONS

- A. RFI: Request for Information. Request from FAA or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 1 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names,

addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Submit a copy to the COR/RE. Keep list current at all times

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall cooperate with COR/RE who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for FAA and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and direction of COR/RE to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
- E. RFI Forms:
1. Attachments shall be electronic files in PDF format.
- F. COR/RE Action: COR/RE will review each RFI, determine action required, and respond. Allow seven working days for COR/RE's response for each RFI. RFIs received by COR/RE after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of Contractor's means and methods.
 - b. Requests for coordination information already indicated in the Contract Documents.
 - c. Incomplete RFIs or inaccurately prepared RFIs.
 2. COR/RE action may include a request for additional information, in which case COR/RE's time for response will date from time of receipt by COR/RE of additional information.
 3. COR/RE's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, COR/RE in writing within 3 days of receipt of the RFI response. A meeting will then be scheduled between the COR/RE, the CO and the contractor to discuss the changes.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of COR/RE
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date COR/RE response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

- H. On receipt of COR/RE action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify COR/RE within seven days if Contractor disagrees with response.

1.6 PROJECT MEETINGS

- A. General: COR/RE will schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform COR/RE who will inform FAA participants and other contractors. The contractor will inform their all others involved, and individuals whose presence is required, of date and time of each meeting. Notify FAA and COR/RE of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, 3 days of the meeting.
- B. Preconstruction Conference: COR/RE will schedule and conduct a preconstruction conference before starting construction, at a time convenient to FAA and COR/RE, but no later than one day after execution of the Agreement.
 - 1. Attendees: Authorized representatives of FAA and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Procedures for processing field decisions and Change Orders.
 - h. Procedures for RFIs.
 - i. Procedures for testing and inspecting.
 - j. Procedures for processing Applications for Payment.
 - k. Distribution of the Contract Documents.
 - l. Submittal procedures.
 - m. Sustainable design requirements.
 - n. Preparation of Record Documents.

- o. Use of the premises and existing building.
 - p. Work restrictions.
 - q. Working hours.
 - r. FAA's occupancy requirements.
 - s. Responsibility for temporary facilities and controls.
 - t. Procedures for moisture and mold control.
 - u. Procedures for disruptions and shutdowns.
 - v. Construction waste management and recycling.
 - w. Parking availability.
 - x. Office, work, and storage areas.
 - y. Equipment deliveries and priorities.
 - z. First aid.
 - aa. Security.
 - bb. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise COR/RE of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Possible conflicts.
 - i. Compatibility requirements.
 - j. Time schedules.
 - k. Weather limitations.
 - l. Manufacturer's written instructions.
 - m. Warranty requirements.
 - n. Compatibility of materials.
 - o. Acceptability of substrates.
 - p. Temporary facilities and controls.
 - q. Space and access limitations.

- r. Regulations of authorities having jurisdiction.
 - s. Testing and inspecting requirements.
 - t. Installation procedures.
 - u. Coordination with other work.
 - v. Required performance results.
 - w. Protection of adjacent work.
 - x. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to FAA, but no later than 1 day prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of FAA, COR/RE, Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for preparing operations and maintenance data.
 - f. Requirements for delivery of material samples, attic stock, and spare parts.
 - g. Requirements for demonstration and training.
 - h. Preparation of Contractor's punch list.
 - i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - j. Submittal procedures.
 - k. Coordination of separate contracts.
 - l. FAA's partial occupancy requirements.
 - m. Installation of FAA's furniture, fixtures, and equipment.
 - n. Responsibility for removing temporary facilities and controls.

- o. Review and fill out CAI Documents

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Site condition reports.
 - 3. Unusual event reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.

- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time belongs to FAA
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF file.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working digital copy of schedule, labeled to comply with requirements for submittals.
- C. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
 - 3. Total Float Report: List of activities sorted in ascending order of total float.
- D. Site Condition Reports: Submit at time of discovery of differing conditions.
- E. Unusual Event Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of FAA's request.

B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Verify availability of qualified personnel needed to develop and update schedule.
2. Review delivery dates for FAA-furnished products.
3. Review schedule for work of FAA's separate contracts.
4. Review submittal requirements and procedures.
5. Review time required for review of submittals and resubmittals.
6. Review requirements for tests and inspections by independent testing and inspecting agencies.
7. Review time required for Project closeout and FAA startup procedures, including commissioning activities.
8. Review and finalize list of construction activities to be included in schedule.
9. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion, and the following interim milestones:

1. Shutdown and connection of equipment temporary facility.
2. Demolition of ceiling, walls, and floor tiles per drawings.
3. Repair of ceiling, walls, and floor crack per drawings.
4. Painting building interior where repair had occurred.

5. Application of epoxy floor.
 6. Building exterior maintenance.
 7. Return to service from temporary facility.
- C. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.

1.8 REPORTS

- A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- B. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise the FAA in advance when these events are known or predictable.
1. Submit unusual event reports directly to FAA within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and other requirements.
2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
4. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
5. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require COR's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require COR's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.3 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time requested for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by COR and additional time for handling and reviewing submittals required by those corrections.
 1. Coordinate submittal schedule with list of subcontracts and Contractor's construction schedule.

2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 30 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of contractor.
 - e. Description of the Work covered.
 - f. Scheduled date for COR's final release or approval.

1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of COR.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Options: Identify options requiring selection by COR as appropriate.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by COR on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

- D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.5 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Email: Prepare submittals as PDF package, and transmit to COR by sending via email. Include PDF transmittal form. Include information in email subject line as requested by COR.
 - a. COR will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. COR reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on COR's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 14 days for initial review of each submittal package. Allow additional time if coordination with subsequent submittals is required. COR will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 7 days for review of each resubmittal.
 - 4. Sequential Review: If sequential review of submittals by COR's consultants, FAA, or other parties is indicated, allow 14 days for initial review of each submittal.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from COR's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from COR's action stamp.

1.6 SUBMITTAL REQUIREMENTS

- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.

- c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work are to be removed from site.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. COR will return submittal with options selected.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.

1.7 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to COR.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and one paper copy, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.8 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to COR.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. COR will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 COR'S REVIEW

- A. Action Submittals: COR will review each submittal, indicate corrections or revisions required.
 - 1. PDF Submittals: COR will indicate, via markup on each submittal, the appropriate action.
- B. Informational Submittals: COR will review each submittal and will not return it, or will return it if it does not comply with requirements. COR will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from COR.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. COR will return without review submittals received from sources other than Contractor.

- F. Submittals not required by the Contract Documents will be returned by COR without action.
- G. The COR approval of submittals, if in error, does not relieve the contractor from providing the correct product per the contract documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.

1.2 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- C. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

1.3 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to COR.

1.4 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to COR for direction before proceeding.

- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to COR for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Contractor's quality-control personnel.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
- C. Reports: Prepare and submit documents as specified.
- D. Permits, Licenses, and Certificates: For FAA's record, submit copies of permits, licenses, certifications, inspection reports, releases and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 REPORTS AND DOCUMENTS

- A. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 - 2. Statement that equipment complies with requirements.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 4. Statement whether conditions, products, and installation will affect warranty.
 - 5. Other required items indicated in individual Specification Sections.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- C. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- D. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.8 QUALITY CONTROL

- A. Contractor Responsibilities: Tests and inspections not explicitly assigned to FAA are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 - 1. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 2. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to COR.
 - 4. Identification of testing inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for COR's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Project Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Project Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Project Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Project Engineerural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 - 8. ACI - American Concrete Institute; (Formerly: ACI International); www.abma.com.
 - 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.

10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Project Engineers (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Project Engineerural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Project Engineerural Woodwork Institute; www.awinet.org.
39. AWMAC - Project Engineerural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWWA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.

47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CEA - Canadian Electricity Association; www.electricity.ca.
51. CEA - Consumer Electronics Association; www.ce.org.
52. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
53. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
54. CGA - Compressed Gas Association; www.cganet.com.
55. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
56. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
57. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
58. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
59. CPA - Composite Panel Association; www.pbmdf.com.
60. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
61. CRRC - Cool Roof Rating Council; www.coolroofs.org.
62. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
63. CSA - Canadian Standards Association; www.csa.ca.
64. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
65. CSI - Construction Specifications Institute (The); www.csinet.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
68. CWC - Composite Wood Council; (See CPA).
69. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
70. DHI - Door and Hardware Institute; www.dhi.org.
71. ECA - Electronic Components Association; (See ECIA).
72. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
73. ECIA - Electronic Components Industry Association; www.eciaonline.org.
74. EIA - Electronic Industries Alliance; (See TIA).
75. EIMA - EIFS Industry Members Association; www.eima.com.
76. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
77. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
78. ESTA - Entertainment Services and Technology Association; (See PLASA).
79. EVO - Efficiency Valuation Organization; www.evo-world.org.
80. FCI - Fluid Controls Institute; www.fluidcontrolsintitute.org.
81. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
82. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
83. FM Approvals - FM Approvals LLC; www.fmglobal.com.

84. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmgglobal.com.
85. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
86. FSA - Fluid Sealing Association; www.fluidsealing.com.
87. FSC - Forest Stewardship Council U.S.; www.fscus.org.
88. GA - Gypsum Association; www.gypsum.org.
89. GANA - Glass Association of North America; www.glasswebsite.com.
90. GS - Green Seal; www.greenseal.org.
91. HI - Hydraulic Institute; www.pumps.org.
92. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
93. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
94. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
95. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
96. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
97. IAS - International Accreditation Service; www.iasonline.org.
98. IAS - International Approval Services; (See CSA).
99. ICBO - International Conference of Building Officials; (See ICC).
100. ICC - International Code Council; www.iccsafe.org.
101. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
102. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
103. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
104. IEC - International Electrotechnical Commission; <http://www.iec.ch>.
105. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
106. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
107. IESNA - Illuminating Engineering Society of North America; (See IES).
108. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
109. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
110. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
111. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
112. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
113. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
114. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
115. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
116. ISO - International Organization for Standardization; www.iso.org.
117. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
118. ITU - International Telecommunication Union; www.itu.int/home.
119. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.

120. LMA - Laminating Materials Association; (See CPA).
121. LPI - Lightning Protection Institute; www.lightning.org.
122. MBMA - Metal Building Manufacturers Association; www.mbma.com.
123. MCA - Metal Construction Association; www.metalconstruction.org.
124. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
125. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
126. MHIA - Material Handling Industry of America; www.mhia.org.
127. MIA - Marble Institute of America; www.marble-institute.com.
128. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
129. MPI - Master Painters Institute; www.paintinfo.com.
130. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
131. NAAMM - National Association of Project Engineerural Metal Manufacturers; www.naamm.org.
132. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
133. NADCA - National Air Duct Cleaners Association; www.nadca.com.
134. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
135. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
136. NBI - New Buildings Institute; www.newbuildings.org.
137. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
138. NCMA - National Concrete Masonry Association; www.ncma.org.
139. NEBB - National Environmental Balancing Bureau; www.nebb.org.
140. NECA - National Electrical Contractors Association; www.necanet.org.
141. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
142. NEMA - National Electrical Manufacturers Association; www.nema.org.
143. NETA - InterNational Electrical Testing Association; www.netaworld.org.
144. NFHS - National Federation of State High School Associations; www.nfhs.org.
145. NFPA - National Fire Protection Association; www.nfpa.org.
146. NFPA - NFPA International; (See NFPA).
147. NFRC - National Fenestration Rating Council; www.nfrc.org.
148. NHLA - National Hardwood Lumber Association; www.nhla.com.
149. NLGA - National Lumber Grades Authority; www.nlga.org.
150. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
151. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
152. NRCA - National Roofing Contractors Association; www.nrca.net.
153. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
154. NSF - NSF International; www.nsf.org.
155. NSPE - National Society of Professional Engineers; www.nspe.org.
156. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
157. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.

158. NWFA - National Wood Flooring Association; www.nwfa.org.
159. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
160. PDI - Plumbing & Drainage Institute; www.pdionline.org.
161. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
162. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
163. RFCI - Resilient Floor Covering Institute; www.rfci.com.
164. RIS - Redwood Inspection Service; www.redwoodinspection.com.
165. SAE - SAE International; www.sae.org.
166. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
167. SDI - Steel Deck Institute; www.sdi.org.
168. SDI - Steel Door Institute; www.steeldoor.org.
169. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
170. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
171. SIA - Security Industry Association; www.siaonline.org.
172. SJI - Steel Joist Institute; www.steeljoist.org.
173. SMA - Screen Manufacturers Association; www.smainfo.org.
174. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
175. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
176. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
177. SPIB - Southern Pine Inspection Bureau; www.spib.org.
178. SPRI - Single Ply Roofing Industry; www.spri.org.
179. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
180. SSINA - Specialty Steel Industry of North America; www.ssina.com.
181. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
182. STI - Steel Tank Institute; www.steeltank.com.
183. SWI - Steel Window Institute; www.steelwindows.com.
184. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
185. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
186. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
187. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
188. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
189. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
190. TMS - The Masonry Society; www.masonrysociety.org.
191. TPI - Truss Plate Institute; www.tpinst.org.
192. TPI - Turfgrass Producers International; www.turfgrassod.org.
193. TRI - Tile Roofing Institute; www.tilerroofing.org.
194. UL - Underwriters Laboratories Inc.; www.ul.com.
195. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.

196. USAV - USA Volleyball; www.usavolleyball.org.
197. USGBC - U.S. Green Building Council; www.usgbc.org.
198. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
199. WASTEC - Waste Equipment Technology Association; www.wastec.org.
200. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
201. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
202. WDMA - Window & Door Manufacturers Association; www.wdma.com.
203. WI - Woodwork Institute; www.wicnet.org.
204. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
205. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.

16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Project Engineerural & Transportation Barriers Compliance Board; (See USAB).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.

7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservation.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities and support facilities.

1.2 USE CHARGES

- A. General: Contractor is responsible for providing a field office and meeting space trailer(s) for use (by the Contractor) during construction. The FAA will not provide interior office space or facilities for Contractor's use. The field office may be accommodated in the provided staging area. No water, sewer or communication connections will be provided.
- B. Sewer: Pay sewer charges for sewer usage/disposal for construction support operations.
- C. Water: Pay water charges for water used for construction support operations.
- D. Communication: Pay communication charges for communications for construction support operations.
- E. Electric Power Service from Existing System: Electric power from FAA's existing system is available for use. Provide meter, connections and extensions of services as required for construction operations. Pay electrical charges for electrical usage for construction operations.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Submit schedule indicating implementation and termination dates of each temporary utility for COR approval.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities in the staging area as directed by the COR.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or replaced.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with COR for time when service can be provided and connections for temporary services can be made.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of FAA's existing toilet facilities will not be permitted.

- C. Electric Power Service: Connect to FAA's existing electric power service. Maintain equipment in a condition acceptable to FAA.
- D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Connect temporary service to FAA's existing power source, as directed by COR.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 2. Section 014200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved by COR through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the

significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. FAA's Action: If necessary, FAA will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. FAA will notify Contractor, through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of COR's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - b. Use product specified if COR does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.

2. If a dispute arises between contractors over concurrently selectable but incompatible products, COR will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
 3. See individual identification sections where applicable for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," COR will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by COR through Construction Manager in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the COR, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: ..."
2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: ..."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with

- requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
- a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."
 5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
 6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
 7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require "match FAA's sample," provide a product that complies with requirements and matches FAA's sample. COR's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

- D. Visual Selection Specification: Where Specifications include the phrase "as selected by FAA from manufacturer's full range" or similar phrase, select a product that complies with requirements. FAA will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: COR will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, COR may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of COR's and owners, if requested.
4. Samples, if requested.

- B. Submittal Requirements: Approval by the COR of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 01720 - WORK PLACE SAFETY AND HEALTH

PART 1 GENERAL

1.1 Section Includes

- A. This section identifies Contractor requirements for work place safety and health as generally required by local, state, and Federal regulations.

1.2 Definitions

- A. CO: Contracting Officer
- B. COR: Contracting Officer Representative
- C. SECM: Safety and Environmental Compliance Manger

1.3 Contractor Responsibility

- A. It shall be the responsibility of the Contractor to comply with safety, health, and emergency response provisions of this Contract. The provisions of this section represent minimum requirements and shall not supersede additional requirements stated within the Contract or local, state, and Federal regulations.

1.4 Personal Protection

- A. The Contractor shall provide all on-site personnel with appropriate personal safety equipment and protective clothing, and shall ensure that all safety equipment and protective clothing are kept clean and well maintained. Hard hats shall be worn at all times from start to completion of the Contract. In addition, the following items shall be provided to and utilized by all personnel:
 - 1. Work clothing as dictated by the weather.
 - 2. Footwear appropriate for the job which may include steel-toe/shank work safety boots.
 - 3. Additional items shall be provided contingent on the type of hazard encountered and the accepted industry standard for handling the specific type of hazard.

1.5 First Aid and Emergency Response Equipment

- A. The Contractor shall provide for appropriate emergency equipment including an industrial-type first aid kit, a 2A:20B:C-rated fire extinguisher, spill control equipment, and supplies of sufficient quantity to handle potential accidents/incidents related to the nature of the work being accomplished. A listing of emergency phone numbers and points of contact for fire, hospital, police, ambulance, and other appropriate emergency agencies shall be readily available.

1.6 Notification of Spills and Discharges

- A. Contractor shall notify proper local authorities immediately in the event of a spill or discharge of potentially harmful or hazardous materials. Following notification of the local authorities, the Contractor shall notify the COR, CO, and Contract Administrator immediately. If the spill or discharge is reportable under local, state or Federal regulations, and/or human health or the environment is threatened, the Contractor shall notify the National Response Center at 1-800-424-8802 and the state's Department of Natural Resources where the spill or discharge occurred.
- B. Decontamination procedures may be required after clean-up to eliminate traces of the substance spill or reduce it to an acceptable level, as determined by the COR. Complete clean-up may require removal and disposal of contaminated soils. Personnel and equipment decontamination shall occur as specified in this section. All contaminated materials, including solvents, cloth, soil, and wood, that cannot be decontaminated must be properly containerized, labeled, and properly disposed of as soon as possible.
- C. Personnel and equipment that have come into contact with contaminated materials shall be decontaminated. A detergent that has been shown to be successful and effective for removing the hazardous material shall be used as the decontamination solution. Following washing, items shall be rinsed with clean water.

1.7 Project-Generated Wastes

- A. The Contractor shall properly dispose of project-generated wastes that are or may have become contaminated (i.e., PCBs or asbestos). Such wastes include, but are not limited to, disposable clothing, decontamination solvents, and decontamination wash waters.

1.8 Confined Space

- A. Definition. A confined space shall be defined as a space, which, by design, has limited openings for entry and exit, unfavorable natural ventilation that could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces (as defined by OSHA) include, but are not limited to, storage tanks, compartments of ships, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.
- B. In general, FAA confined spaces include vaults, lift stations, crawl spaces, small engine generator rooms, sewers, sumps, chillers, pits, boilers, tunnels, manholes, cooling towers, tanks, and watershed.
- C. Applicable Documents. The following publications of the issue in effect on the date of the solicitation form a part of this specification and are applicable to the extent specified herein.

- 1. American National Standards Institute (ANSI)
2117.1 Safety Requirement for Confined Space

2. FAA Orders
SO AF 1053.2 Southern Region Confined Space Program
1050.4 Environment and Safety Program
3. OSHA Standards
29 CFR 1910.268 Telecommunications
29 CFR 1910.269 Electric Power Transmissions, Generation, and Distribution
29 CFR 1910.46 Permit-Required Confined Spaces
29 CFR 1926.956 Underground Lines

D. Requirements. Prior to any admittance into a confined space as defined in this Section, the Contractor shall perform a hazard evaluation. The hazard evaluation shall include testing the atmosphere for oxygen content, the presence of toxic gases, and the presence of explosive or flammable gases.

1.8 Underground Utility Damage Prevention

A. The Contractor is responsible for complying with all OSHA regulations related to underground utility damage prevention as further specified in Section 01730. The Contractor should take all reasonable steps necessary to make certain that all active, abandoned, or unknown utilities are identified. Such steps are to include the utilization of an individual or firm acceptable to the Contractor and knowledgeable in Subsurface Utility Engineering (SUE) techniques, and competent to perform utility designation in conformance with the National Utility Locating Contractors Association (NULCA) Standard 101 for Professions Competence Standards for Locating Technicians or other written standard acceptable to the Contractor.

PART 2 PRODUCTS [Not Used]

PART 3 EXECUTION

3.1 Accident Reporting

A. In the event of an accident or incident, the Contractor shall immediately notify the FAA in accordance with the Contractor's SSSP. Within 2 working days of any reportable accident/incident or as otherwise set out within the SSSP if an earlier time is specified, the Contractor shall complete and submit to the FAA a written Accident Report. This report shall include the following information:

1. Name, telephone, and location of entity.
2. Project name and description.
3. Name and title of person reporting.
4. Location of accident/incident.

5. Brief summary of the accident/incident giving pertinent details including type of operation ongoing at the time of the accident/incident.
6. Cause of the accident/incident, if known.
7. Casualties (fatalities, disabling injuries).
8. Details of any existing hazard (chemical, contamination, work place safety).
9. Estimated property damage.
10. Nature of damage, effect on Subcontract schedule.
11. Action taken by Contractor to ensure safety and security.
12. Witness information/FAA personnel contacted.

3.2 Spills

- A. In the event of a spill, the Contractor shall take immediate action to control and contain the spill. This will include, at a minimum, the following actions:
1. Keep unnecessary people away, isolate hazardous area, and deny entry.
 2. Do not allow anyone to touch spilled material.
 3. Stay upwind; keep out of low areas.
 4. Keep combustibles away from the spilled material
 5. Use water spray or foam to reduce vapor or dust generation, as needed
 6. Take samples for analysis to determine that clean-up is adequate. Properly trained personnel should be involved in this action.
 7. Take other appropriate actions as needed.
 8. For solid spills, immediately remove and place contaminated materials into staging piles and cover; identify the pile as contaminated; test the material for treatability; dispose of the contaminate off-site at an approved disposal facility.
 9. For liquid spills, immediately absorb with sand, clean fill, or other absorbent/spill mixture.

3.3 Permit-Required Confined-Space Program

- A. Contractor shall be required to evaluate all potential confined spaces as contained in this project and shall submit a Permit Required Confined Space (PRCS) Program to the CO with a copy to the COR for review. The FAA considers all confined spaces as permit required and therefore the Contractor shall be required to submit a PRCS Program for review. The PRCS Program shall outline all potential confined spaces and shall be made in accordance with the applicable OSHA Standards. The PRCS Program shall be sent to the CO as a submittal with a copy to the COR and shall be in accordance with Section 01330, Submittals of the Subcontract.
- B. Permits are required to enter all FAA confined spaces. The Contractor shall prepare an application for permit that defines all conditions that must be met in order to ensure safety of personnel. Permits must be filled out, submitted, reviewed, and posted prior to any personnel entering the confined space. Contractor shall be required to permit all confined spaces. Prior to preparing the permit, the Contractor shall obtain permission to permit the

space from the FAA SECM Confined Space Coordinator. See applicable OSHA Standards for additional information. At no time will the Contractor enter a FAA-owned confined space without first obtaining permission from the FAA.

- C. Copies of all confined space permits shall be given to the COR and the SECM Confined Space Coordinator.
- D. Contractor shall be required to provide all test equipment, personal protective equipment and materials as required for the testing, permitting, monitoring and entering of confined spaces. All equipment must be calibrated within the last 6 months and shall be authorized for its intended use. Contractor shall submit test equipment most recent calibration date to COR and the SECM Confined Space Coordinator on all test equipment used for confined spaces as part of its PRCS.
- E. Contractor shall be required to provide one set of all test equipment, personnel protective equipment and materials required for the COR. All items shall be given to the COR at the beginning of the project. They will be returned when the project is complete. Contractor shall also be required to include its PRCS Program adequate protection for the COR. This shall include all ventilation, testing, monitoring, rescue equipment, ladders, and harnesses as required. All protection and testing for the COR shall be as required for all Contractor employees.
- F. All manholes and handholes greater than 3'-6" in depth shall be considered as permit-required confined spaces. Contractor shall adhere to all requirements as outlined herein.

3.4 Protection of Underground Utilities

A. Preparation

1. All existing underground utilities depicted on the drawings, (which include but are not limited to: power, control, and communications cables; telephone, water and sewer lines; and other utilities) are shown in their approximate locations only. Other utility lines may exist but not be depicted. It is the Contractor's responsibility to ensure that locations of all underground airport, FAA, public, and/or private utilities are established prior to work in the area.
2. The Contractor shall at its expense satisfactorily repair and/or pay the cost of repair for all damages to underground utilities that result from the Contractor's or its lower tier contractors' operations during the period of the Contract. The Contractor is responsible for completing any required repair work to any underground utility that is damaged by its workers, equipment, work, or contractors immediately, and with equal material approved by the COR.
3. If the Contractor damages a cable that has been previously located, then the Contractor shall be required to repair the cable and, at its expense, install either a pull box or manhole depending on the type and/or size of the cable. The COR shall

determine whether a pull box or manhole is required. All costs related to the repair of the damaged cable shall be the responsibility of the Contractor.

4. Do not interrupt existing utilities serving facilities occupied by the Government or others except when permitted in writing by the COR and then only after acceptable temporary utility services have been provided. Provide a minimum 48-hours' notice to the COR. Do not proceed with the interruption of any utility without written notice from the COR.
5. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
6. Protect subgrade and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary. Protect subgrade and foundation soils from softening and damage by rain or water accumulation.
7. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

B. Pre-excavation Requirements for Underground Utility Installations.

1. Prior to any excavation, the Contractor shall layout in the field the centerline of all proposed utilities. In addition the Contractor shall white line (by white spray paint or other means acceptable to the RE) the limits of construction including the area(s) to be excavated. The Contractor shall also identify the proposed placement of grounding rods and cathodic protection.
2. The Contractor shall identify the location of existing underground utilities on as-built drawings, including any unknown or abandoned utility found during construction. The Contractor shall ensure that all Airport officials, FAA technicians, other utility owners/operators, and any One-Call System performing utility designation/location services designate/mark existing utilities within the construction limits as well as the entire path of excavation, including five feet to either side of proposed utilities. The Contractor shall be solely responsible for notifying relevant utility owners/operators and One-Call System sufficiently in advance to ensure that delays to construction do not occur.
3. After completion of the utility designation described above, the Contractor shall hire a professional Subsurface Utility Engineering (SUE) or utility designation/locating company, acceptable to the COR, to designate and sweep the entire excavation area, including five feet to either side of proposed utilities, to confirm the locations of the marked utilities and identify and mark any additional unidentified utilities that may be within the limits of excavation.
4. The Contractor, in accordance with Section 01310, shall notify the COR of the preferred date and time for a pre-work meeting for all excavation work. The COR will coordinate the pre-work meeting with utility owners, local Airport Authority, FAA, the Contractor, and others as applicable to walk the excavation area and review applicable documentation. The contractor shall arrange to have its excavator and SUE (or designation firm) at the pre-work meeting. The Contractor shall

provide a written excavation work plan acceptable to the COR that includes a contingency plan to restore to service all utilities including cables that may be placed out of service or damaged during performance of the work. The work plan at a minimum shall include:

- a. A list of qualified contractors such as plumber, electrician, fiber optical cable splicer, and others as applicable for emergency repair purposes. Due to current FAA/TSA/Airport security requirements, the Contractor shall ensure that these subcontractors have passed any airport security and registration requirement so they can be presented immediately at the job site when emergency repair is warranted.
 - b. The Contractor shall coordinate with the COR to request an Emergency Procedures Plan from the Airport Authority or facility manager. This plan will outline special procedures during emergencies, disasters, accidents and injuries. The Contractor is to review the Emergency Procedures Plan with all its personnel prior to construction and every quarter thereafter.
 - c. The Contractor shall investigate and provide a list of sketches/drawings to all disconnects to electrical circuits, jet fuel lines, natural gas, and main water sources that feed the services in the project area and its vicinity. All disconnects and shut-off valves shall be noted with special notation and procedures if required by the utility owners/operators.
 - d. Name of the SUE or utility designation firm including training and experience of the technician who will be performing the utility designation as well as equipment that will be used for sweeping the area to be excavated.
 - e. Name of the excavator including training and experience of the equipment operator who will be doing the work.
5. Contractor shall expose all utilities that it will be crossing through non-destructive mechanical excavation methods such as vacuum excavation or similar mechanical method(s) approved by the COR (“potholing”) or by hand digging. When a cable is located, the Contractor shall hand-excavate a trench five (5) feet each side of the exposed cable to verify that another cable is not adjacent to the exposed cable. All critical or high priority facilities shall be exposed by potholing or hand digging every 100 feet (or less if on a curve) if the Contractor is working on or parallel to a critical or high priority utility. All exposed utilities shall be properly supported and protected during construction.
6. Contractor shall continuously maintain utilities, facilities and/or systems that are or may be affected by work associated with the project. The Contractor shall provide the COR with written reports on any cable cuts in accordance with Subsection 3.2 C. below.
7. If the Contractor does not find an underground utility that was previously marked, the excavation shall be stopped, the COR shall be notified, and the Contractor shall con-

- tact the appropriate owner/operator of the utility or make contact with the appropriate owner/operator, using the One-Call System when warranted.
8. Every attempt shall be made to preserve the locate markings during excavation. Locate markings that are no longer visible shall be refreshed by calling the one-call system and/or the utility owners/operators for remarking.\
 9. All existing utilities that have been exposed during exploratory potholing or excavation must be supported to prevent stretching, kinking, or damage to the existing utility.

C. Excavation

1. Preserve, protect and maintain existing operable drains, sewers, and electrical ducts during grading, excavating and backfilling operations. Keep excavations dry. Locations indicated for existing utility facilities are approximate. Pipes or other manmade obstructions, in addition to those indicated, may be encountered. Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. Perform all work adjacent to non-Government utilities as indicated in accordance with procedures outlined by utility owner. Excavation made with power driven equipment is not permitted within five feet of any known existing utility. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered. Support uncovered lines until approval for backfill is granted by the COR. No excavated material shall be disposed of in such a manner as to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.
2. An observer, acceptable to the COR, shall be present to assist the equipment operator when operating equipment around known underground facilities and utilities. Adhere to the following during excavation:
 - a. All mechanized excavation shall start with 6 to 10 inches excavation on the surface. The equipment operator shall immediately cease operation and notify the COR if utility warning tapes, sand, or bedding material is uncovered at any time during excavation.
 - b. All excavations within 5 feet of any pedestal, closure, riser guard, pole (with riser), meter, or other structure shall be performed by hand digging or other means such as vacuum excavating.
 - c. If the Contractor discovers damage, causes damage, or even contacts an existing underground utility, the owner/operator of that utility, and COR shall be notified immediately. The Contractor shall be responsible for making necessary repair and/or replacement in accordance with this section and the terms and conditions of the Contract.
 - d. If there is a critical or high priority utility line in the dig area, make arrangements for the utility owner/operator to be on the job site during the excavation. If the utility

- owner/operator refuses to be present, document this response by appending it to the request form.
- e. Only those contractor employees qualified by training, licensed or experienced (as appropriate) shall be permitted to operate machinery, tools or equipment.
3. The Contractor and COR shall coordinate on a daily basis with the excavator and the excavating work crew regarding the work to be performed that day with an emphasis on the excavation work plan and anticipated utility crossings.

END OF SECTION 017200

SECTION 017300 - OSHA SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 Section Includes

- A. This section identifies some select sections of the requirements of the OSHA Construction Standard.

1.2 Contractor Responsibility

- A. General Safety Provisions. The Contractor shall bear full responsibility to provide safe working conditions for its employees and contractors. The Contractor shall not permit any employee or contractor to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to the health and safety of the employee.
- B. Accident Prevention. The Contractor shall bear the responsibility of maintaining an accident prevention program such that frequent and regular inspections of the job site, materials and equipment are made by a competent person designated by the employer.
- C. Use of Equipment. The Contractor shall not permit the use of any machinery, tool, material, or equipment that is not in compliance with OSHA regulations. The employer shall permit only those employees qualified by training and/or experience to operate equipment and machinery.
- D. The FAA will evaluate the Contractor on its safety performance, including that of its subcontractors. The number and severity of safety and security violations will be considered in this evaluation. Contractor safety violations are cause for termination for default, may result in notification of the Contractor's bonding company, and will affect the Contractor's opportunity to propose on future work. Failure to correct such deficiencies will result in Contractor's ability to work on future contracts.

1.3 OSHA Regulations

- A. The Contractor shall comply with the latest Occupational Safety and Health Administration regulations (CFR 29 Part 1926) regarding safety in the work area.

- B. The Contractor shall be responsible for obtaining copies of non-FAA referenced documents without additional cost to the FAA. If Contractor requests, a copy of FAA directives may be obtained by contacting the Subcontract Administrator.
- C. The Contractor is not relieved from adhering to other OSHA requirements not listed herein. The Contractor shall consult the latest referenced OSHA documents for safety regulations.
- D. Documents.
 - 1. OSHA Documents:
 - CFR 29 Part 1926 Safety and Health Regulations for Construction
 - CFR 29 Part 1910 General Industry Standards Applicable to Construction Industry
 - 2. FAA Documents:
 - FAA Order 3900.49 Control of Hazardous Energy during Maintenance, Servicing and Repair

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.1 CFR 29 Part 1926 -- Safety and Health Regulations for Construction

- A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.
 - 1. Subpart D (Occupational Health and Environmental Controls). Contractor shall furnish adequate supply of potable water in containers clearly marked as potable water. Containers containing non-potable water shall be clearly marked. Contractor shall furnish toilet facilities based on the number of employees present on the job-site. A minimum of 1 facility is required for less than 20 employees. See CFR 29 Part 1926 Subpart D for complete requirements.
 - 2. Subpart E (Personal Protective Equipment). The Contractor shall provide adequate protection for the head, hearing, and eyes for all employees working in an area where hazards to the head, ear and eyes exist. See CFR 29 Part 1926 Subpart E for complete requirements.

3. Subpart I (Tools). All hand tools and power tools and similar equipment whether furnished by the Contractor or the employee shall be maintained and operated in a safe condition. Personal protection shall be used when applicable. The use of tools shall be limited to the intended use of said tools. See CFR 29 Part 1926 Subpart I for complete requirements.
4. Subpart K (Electrical). The Contractor shall furnish ground fault protection for all electrical equipment used on the jobsite. Extension cords shall be three wire ground in good shape. Installation of the facilities will require energizing numerous circuits. The Contractor shall protect against electrical shock by methods such as posting warning signs, supplying insulated gloves, locking out and tagging de-energized circuits, and other similar methods. See CFR 29 Part 1926 Subpart K for complete requirements.
5. Subpart P (Excavation/Trenching). Prior to commencing trenching or excavation, the Contractor shall ascertain that the area has been inspected for all utility lines and has been adequately marked. Trenches over four (4) feet in depth shall require either adequate bracing or approved slope or bench methods. All trenches and excavations shall be regularly checked for stability. In the event of a rain shower, the Contractor shall suspend work activity within the trench or excavation until the stability of the trench or excavation is ascertained. See CFR 29 Part 1926 Subpart P and Division 2 of the Contract Specifications for complete requirements for additional requirements.

3.2 CFR 29 Part 1910 -- General Industry Standards Applicable to Construction Industry

- A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.
 1. Section 1910.147. Contractor shall maintain a written hazardous energy control procedure in accordance with CFR 29 1910.147. The written procedure shall describe contractor's responsibilities regarding shift changes or personnel changes. A specific coordinated lockout/tagout procedure shall be recorded in writing and signed by the Contractor and Contract Administrator with copies to each party.
 2. Section 1910.120. The Contractor shall develop and implement an Emergency Response and Contingency Plan in accordance with OSHA Standard 29 CFR 1910.120. In the event of an emergency associated with remedial action, the Contractor shall, without delay, take diligent action to remove or otherwise minimize the cause of the emergency; alert the FAA; and institute whatever measures might be necessary to prevent any repetition of the conditions of actions leading to, or resulting in, the

emergency. Emergency contact names and telephone numbers shall be posted at all project phones and in site-support vehicles as well as included within the plan.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at final completion.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 2. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by COR. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section.
 4. Submit testing, adjusting, and balancing records.
 5. Submit changeover information related to FAA's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 5 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Complete startup and testing of systems and equipment.
 2. Instruct FAA's personnel in operation, adjustment, and maintenance of products, equipment, and systems per Section 017900 "Demonstration and Training."
 3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 4. Complete final cleaning requirements.
 5. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 5 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, COR will either proceed with inspection or notify Contractor of unfulfilled requirements. COR will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by COR, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.
- 1.5 FINAL COMPLETION PROCEDURES
- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Certified List of Incomplete Items: Submit certified copy of COR's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed

and dated by COR. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 5 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, COR will either proceed with inspection or notify Contractor of unfulfilled requirements. COR will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of COR.
 - d. Name of Contractor.
 - e. Page number.
 - 4. Submit list of incomplete items in the following format:
 - a. PDF electronic file. COR will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of COR for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit FAA's rights under warranty.
- B. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 - 1. Submit by email to COR.
- C. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Cleaning to be limited to areas of Work.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances caused by the Work.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Sweep concrete floors broom clean in unoccupied spaces.
 - f. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - g. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.

- h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
- i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
- j. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
- k. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
- l. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.2 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - a. Final Submittal:
 - 1) Submit PDF electronic files of scanned record prints.
 - 2) Scan each drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

1.3 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

- a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations and depths of underground utilities.
 - d. Revisions to routing of piping and conduits.
 - e. Revisions to electrical circuitry.
 - f. Actual equipment locations.
 - g. Duct size and routing.
 - h. Locations of concealed internal utilities.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file.
 3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of COR.
 - e. Name of FAA Project Engineer of Record.
 - f. Name of Contractor.

1.4 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Note related Change Orders where applicable.

B. Format: Submit record Specifications as annotated scanned PDF electronic file(s) of marked-up paper copy of Specifications.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders.

C. Format: Submit record Product Data as scanned PDF electronic file(s) of marked-up paper copy of Product Data.

1. Include record Product Data directory organized by Specification Section number and title.

1.6 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for COR's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839

SECTION 030130 - MAINTENANCE OF CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Epoxy crack injection.
 - 2. Polymer sealers.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at SLCB RTR.
 - 1. Review methods and procedures related to concrete maintenance including, but not limited to, the following:
 - a. Verify concrete-maintenance specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Quality-control program.
 - d. Coordination with building occupants.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions.
- B. Samples: Cured Samples for each exposed product and for each color and texture specified, in manufacturer's standard size appropriate for each type of work.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type of sealant supplied for mixing or adding to products at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.
- B. Store cementitious materials off the ground, under cover, and in a dry location.
- C. Store aggregates covered and in a dry location; maintain grading and other required characteristics and prevent contamination.

1.7 FIELD CONDITIONS

- A. Environmental Limitations for Epoxies: Do not apply when air and substrate temperatures are outside limits permitted by manufacturer. During hot weather, cool epoxy components before mixing, store mixed products in shade, and cool unused mixed products to retard setting. Do not apply to wet substrates unless approved by manufacturer.
 - 1. Use only Class A epoxies when substrate temperatures are below or are expected to go below 40 deg F within eight hours.
 - 2. Use only Class A or B epoxies when substrate temperatures are below or are expected to go below 60 deg F within eight hours.
 - 3. Use only Class C epoxies when substrate temperatures are above and are expected to stay above 60 deg F for eight hours.
- B. Cold-Weather Requirements for Cementitious Materials: Do not apply unless concrete-surface and air temperatures are above 40 deg F and will remain so for at least 48 hours after completion of Work.
- C. Cold-Weather Requirements for Cementitious Materials: Comply with the following procedures:
 - 1. When air temperature is below 40 deg F, heat patching-material ingredients and existing concrete to produce temperatures between 40 and 90 deg F.
 - 2. When mean daily air temperature is between 25 and 40 deg F, cover completed Work with weather-resistant insulating blankets for 48 hours after repair or provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
 - 3. When mean daily air temperature is below 25 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after repair.
- D. Hot-Weather Requirements for Cementitious Materials: Protect repair work when temperature and humidity conditions produce excessive evaporation of water from patching materials. Provide artificial shade and wind breaks, and use cooled materials as required. Do not apply to substrates with temperatures of 90 deg F and above.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

2.2 EPOXY CRACK-INJECTION MATERIALS

- A. Epoxy Crack-Injection Adhesive: ASTM C 881/C 881M, bonding system Type IV free of VOCs.
 - 1. Capping Adhesive: Product manufactured for use with crack-injection adhesive by same manufacturer.
 - 2. Color: Provide epoxy crack-injection adhesive and capping adhesive as indicated by manufacturer's designations that blend with existing, adjacent concrete and do not stain concrete surface.

2.3 POLYMER-SEALER MATERIALS

- A. Epoxy Polymer Sealer: Low-viscosity epoxy, penetrating sealer and crack filler recommended by manufacturer for penetrating and sealing cracks in exterior concrete traffic surfaces; free of VOCs.
 - 1. Color: As selected by Resident Engineer from full range of industry colors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Notify Resident Engineer seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.
- B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries. At columns and walls make boundaries level and plumb unless otherwise indicated.
- C. Perform surveys as the Work progresses to detect hazards resulting from concrete-maintenance work.

3.2 PREPARATION

- A. Ensure that supervisory personnel are on-site and on duty when concrete maintenance work begins and during its progress.

- B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete maintenance work.
1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
 2. Use only proven protection methods appropriate to each area and surface being protected.
 3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete maintenance work is being performed.
 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of concrete maintenance work.
 5. Contain dust and debris generated by concrete maintenance work and prevent it from reaching the public or adjacent surfaces.
 6. Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials.
 7. Protect floors and other surfaces along haul routes from damage, wear, and staining.
 8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.
 9. Protect adjacent surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
 10. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
 11. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.
1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete maintenance work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.
- D. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete maintenance work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.
1. Verify that affected utilities have been disconnected and capped.
 2. Inventory and record the condition of items to be removed for reinstallation or salvage.
 3. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.

- E. Nonacidic Surface Preparation for Sealers: Clean concrete to remove dirt, oils, films, and other materials detrimental to sealer application.

3.3 EPOXY CRACK INJECTION

- A. Clean cracks with oil-free compressed air or low-pressure water to remove loose particles.
- B. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond.
- C. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.
- D. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch thick by 1 inch wider than crack.
- E. Inject cracks wider than 0.003 inch to a depth of 8 inches.
- F. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.
- G. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.

3.4 POLYMER SEALER APPLICATION

- A. Apply polymer sealer by brush, roller, or airless spray at manufacturer's recommended application rate.
- B. Apply to traffic-bearing surfaces, including parking areas and walks.

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Epoxy Crack Injection: Core-drilled samples to verify proper installation.
 - a. Where samples are taken, refill holes with epoxy mortar.
- B. Product will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wall and ceiling sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Include physical properties of treated materials.
 - 3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.
 - 4. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
 - 1. Wood-preservative-treated plywood.
 - 2. Fire-retardant-treated plywood.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that

periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WOOD PANEL PRODUCTS

- A. Emissions: Products shall meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- C. Factory mark panels to indicate compliance with applicable standard.

2.3 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat all plywood unless otherwise indicated.

2.4 FIRE-RETARDANT-TREATED PLYWOOD

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
 - 1. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201/D 3201M at 92 percent relative humidity. Use where exterior type is not indicated.
 - 4. Design Value Adjustment Factors: Treated lumber plywood shall be tested according to ASTM D 5516 and design value adjustment factors shall be calculated according to ASTM D 6305. Span ratings after treatment shall be not less than span ratings specified.
- C. Kiln-dry material after treatment to a maximum moisture content of 15 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.
- E. Application: Treat all plywood unless otherwise indicated.

2.5 WALL AND CEILING SHEATHING

- A. Plywood Sheathing: Exposure 1 sheathing.
 - 1. Span Rating: Not less than 24/0
 - 2. Nominal Thickness: Match existing

2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. For wall and ceiling sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.

- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Screws for Fastening Sheathing to Wood Framing: ASTM C 1002.
- E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
 - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
 - 3. ICC-ES evaluation report for fastener.
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall and ceiling sheathing installation with joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

END OF SECTION 061600

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Glass-fiber blanket.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
 - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
 - 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET

- A. Glass-Fiber Blanket, Kraft Faced per drawing sheet C002/SLCB-RTR-19006559: ASTM C 665, Type II (nonreflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).

2.2 INSULATION FASTENERS

- A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
 - 1. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch (0.762 mm) thick by 2 inches (50 mm) square.
 - 2. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch (2.67 mm) in diameter; length to suit depth of insulation.
- B. Adhesively Attached, Angle-Shaped, Spindle-Type Anchors: Angle welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
 - 1. Angle: Formed from 0.030-inch- (0.762-mm-) thick, perforated, galvanized carbon-steel sheet with each leg 2 inches (50 mm) square.
 - 2. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch (2.67 mm) in diameter; length to suit depth of insulation.

2.3 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
 - 1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.

- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. Attics: Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
 - 5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
 - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
 - 1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft. (40 kg/cu. m).
 - 2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 096723 - RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes resinous flooring systems.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at SLCB RTR.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Sustainable Design Submittals:
- C. Samples for Initial Selection: For each type of exposed finish required.
- D. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.

1.5 INFORMATIONAL SUBMITTALS

- A. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- B. Material Certificates: For each resinous flooring component, from manufacturer.
- C. Material Test Reports: For each resinous flooring system, by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Flammability: Self-extinguishing according to ASTM D 635.

2.2 MANUFACTURERS

- A. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Obtain secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from manufacturer recommended in writing by manufacturer of primary materials.
 - 1. Dur-A-Flex
 - a. Dur-A-Gard flooring system, or approved equal.

2.3 RESINOUS FLOORING

- A. Resinous Flooring System: Abrasion-, impact-, and chemical-resistant, aggregate-filled, and resin-based monolithic floor surfacing designed to produce a seamless floor.
- B. System Characteristics:
 - 1. Color and Pattern: As selected by Resident Engineer from manufacturer's full range
 - 2. Wearing Surface: Manufacturer's standard wearing surface
 - 3. Overall System Thickness: 16 mils
- C. Primer: Type recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated.
- D. Reinforcing Membrane: Flexible resin formulation that is recommended by resinous flooring manufacturer for substrate and resinous flooring system indicated and that inhibits substrate cracks from reflecting through resinous flooring.
- E. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.
- F. Topcoats: Sealing or finish coats.
 - 1. Resin: Epoxy
 - 2. Formulation Description: 100 percent solids
 - 3. Type: Pigmented
 - 4. Number of Coats: Per manufacturer instructions
 - 5. Finish: Gloss
- G. System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:
 - 1. Compressive Strength: 10,500 psi minimum according to ASTM C 579.
 - 2. Tensile Strength: 1,950 psi minimum according to ASTM C 307.
 - 3. Flexural Modulus of Elasticity: 2,900 psi minimum according to ASTM C 580.
 - 4. Indentation: 0.025 MAX.
 - 5. Impact Resistance: No chipping, cracking, or delamination and not more than 1/16-inch permanent indentation according to MIL-D-3134J.
 - 6. Resistance to Elevated Temperature: No slip or flow of more than 1/16 inch according to MIL-D-3134J.
 - 7. Abrasion Resistance: 40 mg maximum weight loss according to ASTM C-501
 - 8. Hardness: 75-80 Shore D according to ASTM D 2240.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.

- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 - 1. Roughen concrete substrates as follows:
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Comply with ASTM C 811 requirements unless manufacturer's written instructions are more stringent.
 - 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
 - 3. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
 - a. Plastic Sheet Test: ASTM D 4263. Proceed with application only after testing indicates absence of moisture in substrates.
 - b. Relative Humidity Test: Use in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - 4. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Patching and Filling: Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
 - 1. Control Joint Treatment: Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.
- D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

3.2 APPLICATION

- A. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. Expansion and Isolation Joint Treatment: At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- B. Primer: Apply primer over prepared substrate at manufacturer's recommended spreading rate.

- C. Reinforcing Membrane: Apply reinforcing membrane to substrate cracks.
- D. Self-Leveling Body Coats: Apply self-leveling slurry body coats in thickness indicated for flooring system.
 - 1. Aggregates: Broadcast aggregates at rate recommended by manufacturer and, after resin is cured, remove excess aggregates to provide surface texture indicated.
- E. Troweled or Screeded Body Coats: Apply troweled or screeded body coats in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When body coats are cured, remove trowel marks and roughness using method recommended by manufacturer.
- F. Grout Coat: Apply grout coat, of type recommended by resinous flooring manufacturer, to fill voids in surface of final body coat.
- G. Topcoats: Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer and to produce wearing surface indicated.

3.3 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may, at any time and any number of times during resinous flooring application, require material samples for testing for compliance with requirements.
 - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
 - 3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.
- B. Core Sampling: At the direction of Owner and at locations designated by Owner, take one core sample per 1000 sq. ft. of resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring. Correct deficiencies in installed flooring as indicated by testing.

3.4 PROTECTION

- A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

END OF SECTION 096723

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Concrete.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements listed in the Exterior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
3. Material should be compatible with epoxy mortar sealant.

C. Colors:

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Concrete: 12 percent.
 2. Fiber-Cement Board: 12 percent.
 3. Masonry (Clay and CMUs): 12 percent.
 4. Wood: 15 percent.
 5. Portland Cement Plaster: 12 percent.
 6. Gypsum Board: 12 percent.
- C. Portland Cement Plaster Substrates: Verify that plaster is fully cured.
- D. Exterior Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

- E. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- F. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Paint entire exposed surface of window frames and sashes.
 - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
 - 1. Water-Based Light Industrial Coating System:
 - a. Prime Coat: As needed
 - b. Topcoat: Clear, light industrial coating, exterior, water-based, acrylic, topcoat sealer

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on interior substrates.
 - 1. Wood.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.

- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Colors: Match existing

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
 2. Fiber-Cement Board: 12 percent.
 3. Masonry (Clay and CMUs): 12 percent.
 4. Wood: 15 percent.
 5. Gypsum Board: 12 percent.
 6. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.

- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- F. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.

2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Wood Substrates: Exposed framing.

1. Latex over Latex Primer System:

- a. Prime Coat: Primer, latex, for interior wood
- b. Intermediate Coat: Latex, interior, matching topcoat.
- c. Topcoat: Latex, interior, semi-gloss (MPI Gloss Level 5).